

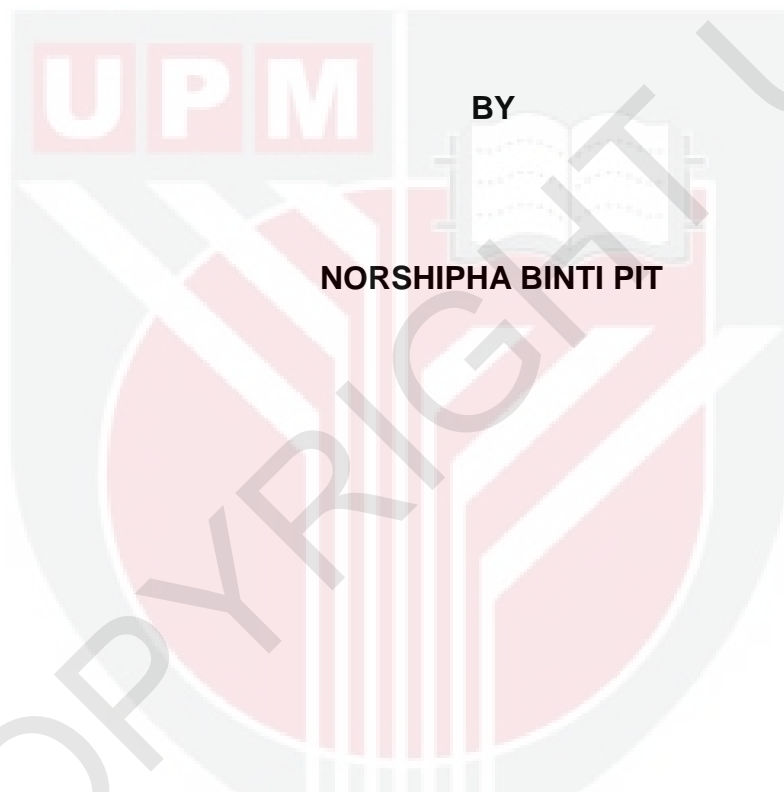


***MACROFUNGI DIVERSITY IN SECONDARY FOREST OF
THREE FOREST TRAILS***

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FH 2018 25

**MACROFUNGI DIVERSITY IN SECONDARY FOREST OF
THREE FOREST TRAILS**



**BY
NORSHIPHA BINTI PIT**

**A Project Report Submitted in Partial Fulfillment of the Requirements
For the Degree of Bachelor of Forestry Science in the
Faculty of Forestry
Universiti Putra Malaysia**

2018

DEDICATION

For my beloved family:

Pit Bin Sepali

Khadijah Binti Gom

Also my siblings.

To all my friends,

Under-graduate students and practical students,
for helping me during the entire project.

Thank you for your suggestion, opinion, sacrifices and comments for my
project

Thank you for everything. May Allah Bless All of us.

ABSTRACT

Lowland tropical forests consist of different types of forest trails that include diverse plants, animals and fungi. We examined whether macrofungi diversity of forest trail was associated with length of forest trail, disturbance, sizes and microclimate in three urban forest in Selangor, Malaysia. Macrofungi were collected along the trails with 1.5km length and 30 transect were opened and environmental parameters; soil moisture, soil pH, temperature, relative humidity and wind speed. In total, 254 macro fungi were collected along the trails in forest sites. The species richness and abundance of macrofungi the sites were affected by the size of the baseline and forest patches. Meanwhile, Sungai Lalang Forest Reserve recorded the highest species richness and abundance of macrofungi, followed by Bukit Cerakah Forest Reserve and Ayer Hitam Forest Reserve had the lowest in number of individuals and species.

ABSTRAK

Hutan tropika tanah pamah mempunyai jenis laluan hutan yang berlainan dan mempunyai kepelbagaian tumbuhan, haiwan dan kulat yang tinggi. Kajian kami meliputi kesan sama ada kepelbagaian makrofungi di laluan hutan dikaitkan dengan panjang laluan hutan untuk sesuatu kawasan, gangguan, saiz dan iklim mikro dalam tiga hutan utama di Selangor, Malaysia. Sampel makrofungi di kumpul di sepanjang laluan hutan dengan panjang 1.5km dan 30 transect dibuka dan parameter seperti kelembapan tanah, pH tanah, suhu, kelembapan relatif dan kelajuan angin diukur. Sejumlah 254 kulat macro fungi telah dikumpul di sepanjang laluan di tiga tapak hutan. Bagi kekayaan spesies dan banyaknya mackrofungi di tiga hutan dipengaruhi oleh saiz garis hutan tersebut. Sementara itu, Hutan Simpan Sungai Lalang mencatatkan kekayaan spesies tertinggi dan banyaknya makrofungi, diikuti oleh Hutan Simpan Bukit Cerakah dan jumlah yang paling rendah dalam jumlah dan kekayaan spesies adalah Hutan Simpan Ayer Hitam.

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APPROVAL SHEET

I certify that this research project report entitled “Macrofungi Diversity in Secondary Forest of Three Forest Trail” by Norshipa binti Pit has been examined and approved as a partial fulfillment of the requirements for the Degree of Bachelor of Forestry Science in the Faculty of Forestry, Universiti Putra Malaysia.

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TABLE OF CONTENTS

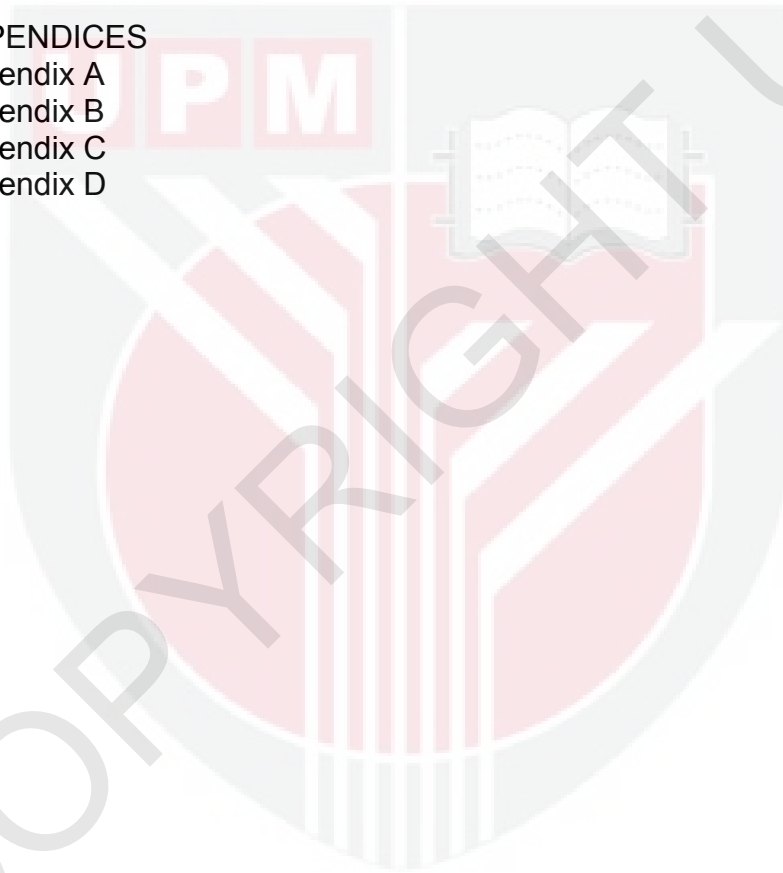
	Page
DEDICATION	ii
ABSTRACT	iii
ABSTRAK	iv
ACKNOWLEDGEMENT	v
APPROVAL SHEET	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
CHAPTER	
1 INTRODUCTION	
1.1 General Background	1
1.2 Problem Statement	2
1.3 Aim and Objectives	3
1.4 Hypothesis	3
2 LITERATURE REVIEW	
2.1 Macro fungi	4
2.2 Microclimate Factor that influence Macro fungi	5
2.2.1 Canopy cover, Air Humidity and Temperature	5
2.2.2 Soil Moisture and pH	6
2.3 Fragmentation	7
2.4 Importance of Macro fungi	8
2.5 Trails and Effect to Macro fungi	8
3 METHODOLOGY	
3.1 Study Area	10
3.2 Sampling techniques	12
3.2.1 Plot establishment	12
3.3 Macro fungi sampling	13
3.3.1 Samples collection	13
3.3.2 Macro fungi identification	13
3.4 Microclimate and explanatory	14
3.5 Data Analysis	14
4 RESULTS	
4.1 Summary	15
4.2 Comparison in Macro Fungi Abundance	15
4.2.1 Mean from Post hoc Tukey Test	16
4.3 Comparison in MacroFungi Species Richness	17
4.3.1 Mean from Post hoc Tukey Test	18
4.4 Parameters significant to sp. Richness macrofungi	22
4.5 The list of morphology species macrofungi	27

5	DISCUSSION	48
	5.1 Mean abundance and species richness	49
	5.2 Effect of the air temperature.	50
	5.3 Effect of the soil moisture and pH	51
	5.4 Effect of the canopy cover.	51
	5.5 The difference order macrofungi	
6	CONCLUSION, LIMITATIONS AND RECOMMENDATIONS	53
	6.1 Conclusions	53
	6.2 Limitations and Recommendations	

REFERENCES

APPENDICES

- Appendix A
- Appendix B
- Appendix C
- Appendix D



LIST OF TABLES

TABLE	PAGE
3.1 Environmental characteristic for three studies sites in Selangor.	10
4.1 Total abundance and species richness of macrofungi recorded in three forest trails.	15
4.2 Comparison abundance of macrofungi between three forest trails	16
4.3 Mean from Tukey's test on the abundance of macrofungi in three forest trails.	16
4.4 upper mean, lower mean and the median for three study sites.	16
4.5 Comparison in species richness of macrofungi between three forests trails.	18
4.6 Mean from Tukey's test on the abundance of macrofungi in three forests trails site.	18
4.7 upper mean, lower mean and the median for three study sites.	18

LIST OF FIGURES

FIGURE		PAGE
3.1	Maps of three selected sites	11
3.2	Design plot sampling along the trails	12
4.1	Boxplot of the abundance of macrofungi in three study sites trail	17
4.2	Boxplot species richness of macrofungi in three study sites trail	19
4.3	Relationship between the abundance of macrofungi with soil moisture	20
4.4	Relationship between abundance of macrofungi with the relative humidity.	21
4.5	Relationship of species richness of macrofungi and air temperature	22
4.6	Relationship of species richness of macrofungi and canopy cover	23
4.7	Relationship of species richness of macrofungi and relative humidity.	24
4.8	Relationship the species richness between soil moisture	25
4.9	Relationship the species richness and between the soil pH	26

LIST OF ABBREVIATION

%	Percentage
°c	Degree Celcius
AHFR	Ayer Hitam Forest Reserve
BCFR	Bukit Cerakah Forest Reserve
d.f	Degree of freedom
HSSL	Hutan Simpan Sungai Lalang
M	Mean
p-value	Significant value
SLFR	Sungai Lalang Forest Reserve
TBNSA	Taman Botani Negara Shah Alam

CHAPTER 1

INTRODUCTION

1.1 General Background

Malaysia is well-known for its pristine and diverse tropical forest such as lowland, mangrove, peat swamp and hill dipterocarp forest. It is an ecosystem that consists of living biotic and non-biotic component. Forest provide refuge not only for animals, but also diverse species of plants and fungi.

Forest in Malaysia has reduced its size due to forest fragmentation. Forest fragmentation occurs when large and continuous forest are divided into smaller blocks by roads, agriculture, urbanization, or other development. The loss of forests area results in reduction of habitat, and fragmentation is the process by which forest habitat is broken apart and destruction of pure habitat (Fahrig, 2003). These developments give rise to the decline in overall function of forest ecosystem as habitat for animals, plants and fungi. Forest-dependent species such as mammals and birds are particularly sensitive to habitat loss and fragmentation (Newell, 1999; Lindenmayer et al., 2000; McAlpine and Eyre, 2002).

The effects of forest fragmentation caused negative impact on forest resources and biodiversity within the forest ecosystem. Forest conversion are mainly due to housing, recreational, and urban development. Forest-dependent species are characterised by highly specific habitat requirements

and limited movement capabilities through the land use matrix (Lindenmayer et al., 1990; Incoll et al., 2001). The inability to utilise the changes in land use makes forest-dependent species particularly vulnerable to the effects of habitat loss and fragmentation (Laurance, 1994).

The present study is emphasizing on macro fungi along forest trail due to their importance as decomposer in forest ecosystem. Macro fungi are affected by forest fragmentation due to changes in humidity. Some species like micro fungi can become an indicator to the health of the forest as they provide crucial function in ecological process and nutrient dynamics of forest ecosystem. Besides, fungi also play major roles in principal transformations as the process of nitrogen cycling is essential for all forms of life and microorganism.

1.2 Problem Statement

Changes in land use such as plantation and urban development demand urgent studies of the effect of fragmentation to overall biodiversity and especially macro fungi. The crucial factors contribute to the decline of forest resource and biodiversity are the loss and fragmentation of forest habitats.

The purpose of this research is to study the effect of macrofungi in lowland forest specifically in forest trails. This study is emphasized on macrofungi due to the lack information on macro fungi, as most studies focus on the forest fragmentation on birds, small mammals and plants, insects, aquatic invertebrates (Fahrig, 2003). This research was conducted to compare the

diversity of macrofungi on forest trails in three forest sites with a fragmented condition.

1.3 Aim and Objectives

The aim of this study was to compare the abundance and species richness of macrofungi on the trail between continuous (baseline) forest and the forest patch.

Three specific objectives were designed to meet this aim which are:

- I. To identify species richness based on morphological characteristics of macrofungi.
- II. To quantify the abundance of macrofungi species at forest trail substrate in three different type of forest trails

To relate the species richness and abundance of macrofungi to the microclimate of three forest trails.

1.4 Hypothesis

The present study hypothesizes that the abundance and species richness of macrofungi on forest trail substrate are greater in larger forest compared to smaller patches because of fragmentation effects on the matrix of the forest and ecosystem.

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